REMARKS

The Office Action of November 4, 2005 has been received and reviewed. Claims 1, 2, 4, 6, 7, 9 and 11-13 are currently pending in the application. Claims 1, 2, 4, 6, 7 and 9-13 stand rejected. Claims 3, 5, 8, and 10 are cancelled. New claims 14-16 have been added. No new matter has been added. All cancellations and amendments are made without prejudice or disclaimer. Reconsideration is respectfully requested.

Interview

Applicant's representatives thank the Examiner and the SPE for providing them the courtesy of an interview on April 29, 2005. The distinctions of the present invention over those of Wu '294 and Wu '358 were discussed. The substance of the interview and data was submitted in the Supplemental Reply of May 17, 2005, which is incorporated herein by reference.

Rejections Under 35 U.S.C. § 103(a)

Claims 1, 2, 4, 6, 7 and 9-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wu '358 (USP 5,908,358) in view of Wu '294 (USP 6,210,294). (*See*, Office Action of November 4, 2005, at page 2, hereinafter referred to as "Office Action"). Applicants traverse the rejection as hereinafter set forth.

M.P.E.P. § 706.02(j) sets forth the standard for an obviousness rejection as follows:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on

applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Applicants reassert all arguments made in the amendment of April 14, 2005 since it appears several of the arguments were not addressed in the Examiner's response of November 4, 2005. Specifically, in response to the arguments presented in the amendment of April 14, 2005, the Examiner again remarks that Applicant uses the "transitional phrase 'consisting essentially of' in the context of 'comprising' when referring to the urethane resin." (*Sec.Id.* at page 3) But the Examiner does not follow this statement with reasons or grounds for objecting to or otherwise rejecting the claims based on use of this phrase. However, this phrase was the grounds of a rejection under 35 U.S.C. § 112, first paragraph, in the prior Office Action of December 14, 2004. Why this now appears in the rejection under 35 U.S.C. § 103(a) is a mystery. Thus, it is not possible to respond to such a statement, especially in light of the fact that the 35 U.S.C. § 112 rejections have been withdrawn in light of prior arguments made in the Amendment of April 14, 2005 directed at this very point.

The Examiner further goes on to cryptically state the following: "Wu '358 notes that disclosed examples isocyanates used to form commonly known polyurethanes but does not necessarily limite the diisocyanates to thoses disclosed, which is why Wu '294 was used in combination with Wu '294." (*See*, Office Action, at page 4). How Wu '294 can be combined with itself is also a mystery to Applicants, as are the remaining words found in this response to Applicants' arguments.

The Examiner appears to suggest the references inherently disclose the present invention. (*See*, Office Action, at page 4, stating "Wu '358 inherently implies that the polyurethane has a diisocyanate but does not limit the type of diisocyanate."). However, this is not the standard for inherency. To support a rejection based upon inherency, an Examiner must provide factual and technical grounds establishing that the inherent feature *necessarily* flows from the teachings of the prior art. See Ex parte Levy, 17 USPQ2d 1461 (BOPAI 1990); see also In re Oelrich, 212 USPQ 323 (CCPA 1981) holding that inherency *must* flow as a necessary conclusion from the prior art, not simply a possible one. The Examiner has failed to support his rejection consistent with applicable case law.

The Federal Circuit stated in In re Robertson, 49 USPQ2d 1949 (Fed. Cir. 1999), that "to establish inherency, extrinsic evidence must make clear that the missing descriptive matter was necessarily present in the thing described in the reference, and would be so recognized by persons with ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a set of circumstances is not sufficient." In re Robertson, 49 USPQ2d 1949 (Fed. Cir. 1999). Further, it has been held that the mere fact that a certain thing may result from a given set of circumstances is not sufficient, and occasional results are not inherent. MEHL/Biophile International v. Milgraum, 52 USPQ2d 1303 (Fed. Cir. 1999).

Further, the Examiner has no basis for restating or repackaging this rejection under 35 U.S.C. 103. That which is inherent in the prior art, if not known at the time of the invention, cannot form a proper basis for rejecting the claimed invention as obvious under § 103. See In re Shetty, 566 F.2d 81, 86, 195 U.S.P.Q. 753, 756-57 (C.C.P.A. 1977).

Arguments based on inherent properties cannot stand when there is no supporting teaching in the prior art. In re Spormann, 363 F.2d 444,448, 150 U.S.P.Q. 449 (C.C.P.A. 1966). Inherency and obviousness are distinct concepts. Thus, an applicant may in certain circumstances attack an obviousness rejection as improper if the Examiner indicates that specific features of the application, although not shown in the prior art, are inherent.

This obviousness rejection is repeated in light of the objective data and tests submitted on May 17, 2005 as agreed upon in the interview. Thus, Applicant again submits the following clear and concise explanation of the distinctions of the present invention over that disclosed by Wu '294 and Wu '358.

The Present Invention

The present invention provides a golf ball which exhibits the shot feel and control which the Balata rubber cover imparts as well as the durability and flight performance which the ionomer cover has, without using a thermoplastic resin or an organic fiber as a cover material. The cover is characterized by the following properties:

(a) the cover contains a specific polyurethane resin composition formed by curing an isocyanate group-terminated urethane polymer cured with a polyamine compound;

(b) the cover has a stiffness modulus [A] in the range of 80-260 MPa;

(c) the cover has a Shore D hardness [B] in the range of 40-60; and

(d) the relationship [A/B] between the stiffness modulus and the Shore D hardness of the cover material is within a constant range of 2.0 to 5.0.

The golf ball having the above disclosed cover yields a golf ball with an unexpectedly superior controllability, shot feel, durability and flight performance, as shown in the

embodiments of the present invention, and which could not be obtained with the conventional golf ball cover. As stated in the M.P.E.P. at § 716.02, "[a] greater than expected result is an evidentiary factor pertinent to the legal conclusion of obviousness ... of the claims at issue." (*See*, M.P.E.P., at § 716.02, citing *In re Corkill*, 711 F.2d 1496, 226 USPQ 1005 (Fed. Cir. 1985)). The M.P.E.P. further states that, "[e]vidence of a greater than expected result may also be shown by demonstrating an effect which is greater than the sum of each of the effects taken separately (*i.e.*, demonstrating "synergism")." (*See*, *Id.*, citing *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989)).

The Cited References

The Examiner states that because Wu '358 discloses that alicyclic isocyanates may be used to produce a thermoset polyurethane and Wu '294 discloses a polyurethane composition formed with dicyclohexylmethane diisocyanate and isophorone isocyanate, a person of ordinary skill in the art would have found it obvious to combine these two cited references. (*See*, Office Action, generally at pages 2-3).

However, the Examiner's analysis is incorrect because the present invention does not reside simply in optimizing the cover as disclosed by Wu '358. Furthermore, there is no motivation to combine these two references and even if combined, one of ordinary skill in the art could not reasonably predict success in this combination, nor the unexpectedly superior results achieved by the present invention.

A. Wu '358

The Examiner states that in light of the relationship between the stiffness modulus range and the Shore D hardness, as claimed by the present invention, one may apply this relationship to the Example in Wu '358 having a hardness of 51-58 and a cover which has a calculated stiffness modulus of 102-116 MPa and conclude that this Example satisfies feature (b) of claim 1 of the present application.

However, Wu '358 neither discloses nor suggests to improvement of the properties of the cover by specifying the relationship between the range of the stiffness modulus (A) and the Shore D hardness (B) as recited, in part, by claim 1, "the stiffness modulus and shore D hardness of the cover material satisfy the following equation: $2.0 \leq A/B \leq 5.0$, $40 \leq B \leq 60$."

The Examiner states that "Wu '358 shows examples of golf balls in which bear the cover of the present invention wherein it is shown that the covers have a hardness of 51 to 58 Shore D," and "[f]rom the above, a modulus of at least 102 to 116 would satisfy applicant's criteria." (*See*, Office Action, at page 2). We think this means that the Examiner feels Table 1 of Wu '358 discloses a cover having a Shore D of between 51 to 58 and a modulus of between 102 and 116. However, the claims of the present invention also clearly specify that the cover materials must satisfy the equation $2.0 \leq A/B \leq 5.0$, $40 \leq B \leq 60$. Wu '358 neither discloses nor suggests that by correlating Shore D to stiffness modulus in this way would achieve the unexpectedly superior results disclosed by the present invention. Wu '358 only discloses a Young's modulus of an extremely large range of between 34.5 to 689.5 MPa. Accordingly, Wu '358 only discloses a very large range of relationships between Young's modulus and hardness of 0.6(34.5/58) – 13.5(689.5/51). Thus, it is only in hindsight that the range of the modulus 102-116 MPa could

possibly be determined as yielding the results of the present invention from within this extremely broad range of unpredictable variables.

Furthermore, Wu '358 does not disclose, teach or suggest using other curing agents other than the specific epoxy disclosed by Wu '358. Rather, the specific epoxy disclosed by Wu '358 is the only epoxy disclosed and it is essential for the invention of Wu '358. The epoxy curing agent disclosed by Wu '358 is required to improve a shear resistance.

B. Wu '294

Wu '294 discloses a polyurethane composition having a dicyclohexylmethane diisocyanate and isophorone diisocyanate as isocyanates, as discussed by the Examiner. (*See*, Office Action, at pages 2-3). However, Wu '294 only shows an example of a polyurethane forming a cover and does not recite the importance of the relationship between the stiffness modulus and the hardness and the effect of this relationship on the controllability and durability of the golf ball, as recited, in part, in the claims of the present invention, especially claims 1, 6 and 13.

Moreover, Wu '294 uses a specific diol compound which is different from that of Wu '358 as an essential curing agent in order to improve the initial velocity of the golf ball. (*See*, Wu '294 at column 3, lines 54-57 and column 10, Tables 1 and 2). Therefore, Wu '294 only teaches one of ordinary skill in the art that the specific diol curing agent used in Wu '294 improves initial velocity. Nothing more regarding the relationship between stiffness modulus and Shore D hardness is disclosed by Wu '294. Furthermore, there is no teaching or disclosure in Wu '294 regarding the specific isocyanate compounds disclosed by the present invention, nor their use as essential components to improve initial velocity.

Differences Between Cited References and Present Invention

The present invention is directed to a golf ball having a stiffness modulus different from Young's modulus of the cited references. According to the invention, a golf ball having excellent characteristics can be obtained only by a combination of the stiffness modulus having 80-260 MPa and the value of A/B being between 2.0 and 5.0 (A/B being the ration between the stiffness modulus and the Shore D hardness).

The relationships and effectiveness of the above ranges are clearly disclosed by the present invention at, for instance, Tables 2-4. For example, Ball Nos. 1-7 in Table 2 all provide for Excellent (E) or good (G) controllability and shot feeling properties. On the other hand, for example, Ball No. 11 (308 MPa and A/B ration of 5.2) and Ball No. 15 (90 MPa and A/B ratio of 1.7) in Table 3 exhibit poor (P) or fair (F) controllability and shot feel. Further, Ball No. 8 (296 MPa and A/B ratio of 4.6) does not improve the controllability and shot feeling property regardless of the fact that the stiffness modulus falls within the range as recited by the equation in claims 1, 6 and 13.

Thus, the disclosure of Wu '358 cannot be directly compared with that of the present invention simply because the modulus values calculated by use of the equation recited by claims 1, 6 and 13 fall within the stiffness modulus range as also recited by claim 1, "the stiffness modulus of the cover material is 80 to 260 MPa." The above values cannot be calculated if accurately following the disclosure of the cited references. Since Wu '358 does not even recite stiffness modulus, it would be impossible to derive stiffness modulus for improving the controllability. Even if this value could be derived from Young's modulus, it is clear that the

relationship between the stiffness modulus and the Shore D hardness could not be derived even if both references were considered in combination.

The Examiner states that, "[t]he only thing that would make Wu '358 teach away from 'consisting essentially of' is if the epoxy material effect the basic novel characteristic of the polyurethane." (*See*, Office Action, at page 3). However, referring to Wu '358, it can be confirmed that the epoxy curing agent greatly affects the properties of the obtained polyurethane resin compound. Specifically, it is clear that in Wu '358, Example 3, without any epoxy curing agent, detrimental shear resistance is observed. (*See*, Wu '358, at column 9, table and lines 14-22). Therefore, omitting this compound would destroy the intended purpose of Wu '358, thus, there is no motivation to use other curing agents instead of the epoxy curing agent. In other words, the epoxy curing agent does change the properties of the urethane resin composition as shown in Table 9 of column 9 of Wu '358. Hence, the properties of the cover formed with or without the epoxy curing agent are clearly different, even in the case of golf balls using the same urethane components. Since the subject of Wu '358 is the use of the epoxy curing agent as claimed, a cover composed of a polyurethane resin composition which does not contain an epoxy curing agent cannot achieve the object of Wu '358, and accordingly, Wu '358 clearly teaches away from the present invention.

The Examiner also states that "Wu '358 notes that the invention may be made of a polyurethane prepolymer with a polyamine curing agent or a bifunctional glycol and epoxy curing agent," "Wu '358 implies that the same result may be obtained even without using the epoxy curing agent." (*See*, Office Action, at page 3). However, this is not the standard for obviousness, as already stated, above. Furthermore, the Examiner misunderstands the disclosure

of Wu '358. Wu '358 actually implies that while a prepolymer and epoxy curing agent are essential components, the polyamine and bifunctional glycol are chosen optionally. (*See*, Wu '358 at column 6, lines 15-19). If interpreted any other way, there is no reason why the claimed invention of Wu '358 defines the epoxy curing agent.

Further, Wu '294 also uses a specific diol compound as an essential curing agent to improve initial velocity of the golf ball, which is the object of Wu '294. Wu '294 discloses that the expected properties cannot be obtained by using a curing agent other than such a diol curing agent. (*See*, Wu '294 at column 3, lines 54-57 and column 10, Tables 1 and 2). Accordingly one of ordinary skill in the art would consider that using other curing agents would significantly affect the properties of the cover, based on Wu '294. Therefore, Wu '294 teaches away from using any other polyurethane resin compositions.

Furthermore, even if the disclosures of Wu '358 and Wu '294 were combined, neither of these references discloses that the cover has a stiffness modulus [A] in the range of 80-260 MPa, a shore D hardness [B] in the range of 40-60, and a relationship between A and B, wherein A/B is within the range of 2.0-5.0, as recited by claims 1, 6 and 13. Therefore, the present invention cannot be obvious in light of Wu '294 or Wu '358 or in any combination of these references.

In addition, neither reference discloses the unexpected improvement in controllability, shot performance, durability and flight performance achieved by the present invention through selection of the recited variable ranges. These disclosed ranges could not be predicted from the prior art nor are they suggested by the prior art. There also exists no motivation to combine the references to arrive at the unexpected results of the present invention.

Applicants have proven to the Examiner, through objective data, that only a cover having the features as recited by claims 1, 6 and 13 can achieve the unexpectedly superior results of the present invention. (*See*, Supplemental Reply of May 17, 2005). These test results clearly demonstrate the superiority of the golf ball of the present invention.

Dependent claims 2, 4, 7, 9, 11 and 12 are non-obvious, *inter alia*, as depending from non-obvious base claims, claims 1, 6 and 13.

Reconsideration and withdrawal of the obviousness rejection of claims 1, 2, 4, 6, 7 and 9-13 are requested.

CONCLUSION

If the Examiner has any questions or comments, please contact Thomas J. Siepmann, Registration No 57,374 at the offices of Birch, Stewart, Kolasch & Birch, LLP.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

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Respectfully submitted,

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